

Health sciences libraries building survey, 1999–2009

Logan Ludwig, PhD, AHIP, FMLA

See end of article for author's affiliation.

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Objective: A survey was conducted of health sciences libraries to obtain information about newer buildings, additions, remodeling, and renovations.

Method: An online survey was developed, and announcements of survey availability posted to three major email discussion lists: Medical Library Association (MLA), Association of Academic Health Sciences Libraries (AAHSL), and MEDLIB-L. Previous discussions of library building projects on email discussion lists, a literature review, personal communications, and the author's consulting experiences identified additional projects.

Results: Seventy-eight health sciences library building projects at seventy-three institutions are reported. Twenty-two are newer facilities built within

the last ten years; two are space expansions; forty-five are renovation projects; and nine are combinations of new and renovated space. Six institutions report multiple or ongoing renovation projects during the last ten years.

Conclusions: The survey results confirm a continuing migration from print-based to digitally based collections and reveal trends in library space design. Some health sciences libraries report loss of space as they move toward creating space for "community" building. Libraries are becoming more proactive in using or retooling space for concentration, collaboration, contemplation, communication, and socialization. All are moving toward a clearer operational vision of the library as the institution's information nexus and not merely as a physical location with print collections.

INTRODUCTION

Librarians are frequently challenged to justify the need for the physical library space, given the wide availability of electronic resources, changes in scholarly communications models, ubiquitous student laptops, and competition for space needed by other institutional priorities. Littleton notes that these changes raise important practical and philosophical questions for libraries and the institutions they serve [1]: What is the library's purpose? How is library space best used? How does the concept of "library as place" relate to the concept of the "library as institutional information center?" How do institutional values influence the course of library design?

The 1999 Medical Library Association (MLA) library building survey [2] and this 2009 survey and analysis of health sciences library buildings, additions, remodeling, and renovations over the last ten years offer some insights into these questions and others. The 2009 online survey was developed, and announcements of survey availability were posted to three major email discussion lists: Medical Library Association (MLA) with more than 1,000 members, Association of Academic Health Sciences Libraries (AAHSL) with more than 200 members, and MEDLIB-L with more than 450 members. The survey was conducted during the months of March and April 2009, during which 82 responses were received. In addition to identifying institutional affiliation, respondents were asked to classify the reported building project as totally new, renovation, or combination of renovation and new construction. The survey also asked for project completion date, project cost, gross square feet, furnishing and equipment cost, and special features. The survey also

Highlights

- Seventy-eight health sciences library building projects at seventy-three institutions were reported as completed in the last ten years.
- Five health sciences library projects illustrate the diversity of projects reported.
- Eleven trends in health sciences library buildings are identified.
- Numerous challenges are briefly discussed.

Implications

- Changing services and usage patterns demand innovative ways to use library space.
- Libraries are making more proactive efforts to retool library physical space.
- Migration from print to digital collections is continuing at an accelerated pace.
- More library space is now dedicated for "community" building.

included space for a narrative description of the project. Previous discussions of building projects on library email discussion lists, a literature review, personal communications, and the author's consulting experiences identified additional projects.

Seventy-eight health sciences library building projects are reported in the 2009 MLA survey (Table 1).

Twenty-two are new facilities in new locations; two are expansions to existing library space, although several of the new facilities also include additional space. Forty-five renovation projects are identified; nine libraries report some type of combination of new construction and renovation; and six institutions report multiple or ongoing renovation projects during the last ten years.

To accommodate new roles for the library—such as a coffee shop, collaboration space, and information commons—traditional libraries clearly need to change. It is also clear that whatever direction libraries take, having physical space makes an impact on learners. Numerous respondents to this survey report increased usage of new or remodeled library spaces that are attractive, centrally located, and technologically current and are arranged to meet the needs of groups as well as solitary users. In addition to serving coffee, well-designed facilities support small group study and larger group training, provide abundant wireless access for interdisciplinary collaboration, and welcome those seeking temporary work space, individual assistance, or quiet places. These findings tend to provide additional credence to the McHarg study of medical students with identical curricula and online learning resources, who when given access to a physical library as well as a virtual one, use physical library resources ten times as much as the students with no virtual library access [3]. The building survey also reflects the importance of twenty-four hour a day, seven days a week (24/7) access and validates Gardner and Eng's study that suggests the most important thing an academic library can be is open—preferably twenty-four hours a day [4].

FEATURED HEALTH SCIENCES LIBRARY BUILDING PROJECTS

Nelson observes that every library building project is unique in terms of how the library functions relative to other libraries, the mix of funding sources available, the political climate on campus, the site available for expansion or new construction, and the programmatic issues to be addressed [5]. Five health sciences library building projects have been selected to illustrate how these factors impact library construction projects and the innovative ways that libraries are using space for concentration, collaboration, contemplation, communication, and socialization. They also demonstrate how health sciences libraries are becoming more proactive in retooling the use of their space as they become the information nexus of the institution.

University of Utah Spencer S. Eccles Health Sciences Library and Spencer F. and Cleone P. Eccles Health Sciences Education Building

**Submitted by Jean P. Shipman, AHIP,
FMLA, director**

The Spencer F. and Cleone P. Eccles Health Sciences Education Building (HSEB) at the University of Utah

Figure 1

University of Utah Spencer F. and Cleone P. Eccles Health Sciences Education Building (HSEB), exterior view



is an interdisciplinary education building used by all four health sciences colleges and schools for their teaching (Figure 1). The HSEB is connected by a "generational donor legacy" bridge to the Spencer S. Eccles Health Sciences Library, which was the last library funded by the Medical Library Assistance Act of 1965 built in the country. Library staff does HSEB technical and distance education support, room scheduling, and building administration and maintenance and conducts many of its educational sessions in this facility. A subcontracted bookstore, café, and parking garage provide revenues that support the building operations. The building has three additional main tenants in clinical and hospital training, dental education, and biomedical informatics. University of Utah students have 24/7 access. Three glass art compositions and a ninety-two-foot history of health sciences in Utah mural decorate the building. The Eccles Library staff, under the direction of Wayne Peay, FMLA, contributed to HSEB's design.

Classrooms. The classrooms are designed to accommodate three class sizes: forty students, twenty-five students, and fifteen students. Other than the podiums in the forty- and twenty-five-student classrooms, there is no fixed furniture in the rooms and all classrooms have whiteboards. The forty- and twenty-five-student classrooms have a teaching podium that includes a computer, VCR, and DVD player. These rooms are configured with a classroom management system that controls the computer, projector, screen, lighting, audio system, VCR, and DVD. The podiums also provide connections for portable computers, and universal serial bus (USB) memory devices can be connected to the computers in the classrooms. The fifteen-person classrooms are configured with a portable computer on request, projector, and screen. The classroom management system for these rooms controls the computer and the projector. Sixteen fifteen-person seminar rooms are available for small group instruction.

Clinical suite. The most technologically intensive area in the HSEB is the clinical suite. This facility consists of eighteen fully equipped examination rooms, which are managed by a system that is capable of real-time, digital audio- and video-recording in each room, saved to a large storage array. The system also handles scheduling and performance of students and standardized patients. The library helps coordinate a clinical team experience in the suite, which demonstrates the importance of other health care providers as teams of students from all of the schools and colleges participate in this required experience.

The lecture halls are designed to accommodate classes of 150 students and 75 students. The rooms are tiered, with fixed writing surfaces and power connections at each seat. Access for students with disabilities is provided to the rear and the front of the rooms. The lecture halls have teaching podiums that include a Windows computer, a Macintosh computer, VCR, DVD player, and document projector. These rooms are also configured with a classroom management system that controls the computers, projector, screen, lighting, audio system, VCR, DVD, and document projector. The 150-student lecture halls are equipped with 2 projectors. The podiums also provide connections for portable computers, and USB memory devices can be connected to the computers in the classrooms.

Teaching laboratories. The teaching laboratories are located on the fourth floor. The laboratory space is divided into fourteen ten-person bays. Each bay is equipped with a projector, screen, and computer connectivity. Projection into each bay can be controlled by the classroom management system.

Distance education classrooms. Two forty-person classrooms are configured for use in distance education. In addition to the standard hardware configuration in the teaching podium, rooms 4100C and 5100C have dual projectors to support local and distant projection. Each seat includes power, data, and a microphone. The instructor can monitor projection and broadcast on flat screen monitors located at the back of the classroom.

Located on the third floor at the north end of the building, the computer suites consist of one twenty-four-person computer classroom (Room 3100c); three twelve-person computer classrooms (Room 3100a, b, d); and twenty-five open access computer workstations (Room 3100).

Reception Hall/Alumni Hall. Located on the second floor and adjacent to the main lobby is the University of Utah School of Medicine Alumni Hall. This is a multipurpose facility with flat floors, a divider wall, moveable tables, and chairs. The Alumni Hall can accommodate as many as 150 people.

Lounges and lockers. HSEB houses individual school and college student lounges, where students can relax

and enjoy a quiet study area. There is also a “noisy” interdisciplinary lounge, where students can play ping pong, pool, or foosball. The lounges also have kitchenette areas. Lockers are available for students as well.

University of Medicine and Pharmacy Central Library, Cluj-Napoca, Romania

Submitted by Ioana Robu, library director

On October 1, 2008, the Central Library of the University of Medicine and Pharmacy in Cluj opened in a new location in a new building designed and built specifically to serve as a library (Figure 2). The University of Medicine and Pharmacy in Cluj is the patron institution (in Romania, medical schools are constituted in separate universities that include under their umbrella all the higher education in health sciences: general medicine, dentistry, pharmacy, nursing, midwifery, and allied health, plus various specialized colleges like physical therapy, medical imaging, etc.). Since the founding of the medical university in 1948, the library has functioned in various more or less suitable locations and adapted to its needs. The last location before the move to the present facility was a student hostel, a totally inadequate space.

The new building has 6 floors, 3 of them for the library (building floors 2, 3, and 4) and 3 for university presidential offices. However, the building is always referred to as “the library.” The total space on the 3 library floors is 20,000 square feet (1,700 square meters), equally distributed. Less than 20% of the space is for staff offices (technical services) and 1 seminar room; the rest is public space that includes shelves, reading spaces, and computer workstations capable of seating 300 users. Wireless Internet is available everywhere in the building.

The space in the new library was designed almost from tabula rasa and bears very little resemblance to what existed in the old one, whose main function was lending materials. One of the documents taken into account at the design stage was “Library as Place: Results of a Delphi Study,” by Ludwig and Starr, whose stated objective was “to assist health sciences librarians in designing new library spaces” [6].

Visits to the library, seat occupation, and resource usage have increased dramatically as compared to last year. If in the old library, 30–80 visits per day were normal, mostly to return and borrow books, the average number of visits per day is now 350 (Figure 3). However, statistics for book lending have remained roughly the same, which implicitly means that the visits also had other purposes.

The library is always full, and one can hardly find a place; however, occupancy turnover is rather high with only about 10% of the users staying all day, from opening to closure (Figure 4). Contrary to expectations seats at the larger, common tables are more occupied than the seats at individual tables. The noise seems to be a problem for only a small proportion of the library users. Users especially appreciate open

Figure 2

Central Library of the University of Medicine and Pharmacy, Cluj, Romania, exterior view



access to all the books (the old library had partially closed stacks), a comfortable and warm environment, nice lighting, view of the city, and laptop connectivity to the wireless network. Nearly 30% of the users come every day, 43.5% use the library 2–3 times a week, 20.7% use the library 2–3 times a month, and only a small proportion use the library rarely.

A recent user opinion survey indicates that the library is perceived more and more as a place for doing collaborative work, socializing with peers, and acquiring additional skills for information searching. As Crawford very well points out, “virtual communities on the Internet do not replace physical gatherings” [7]. Moreover, the library has to be a place that responds to the fundamental human needs for comfort, light, and warmth. Flexibility must also be

included in any library design, as culture and technology are changing rapidly and the library must readily accommodate these changes. Users have indicated that they would like more places where they can talk freely without disturbing others and should be allowed to bring coffee and soft drinks to the reading place. They would like to see a café inside the library along with coffee machines, a busy corner for free discussion, more self-lending machines (currently, there is only one), and a drop box for book returns.

The most frequent reasons for using the library include meeting friends, discussing course assignments, resting and relaxing, accessing the full-text databases, looking up the university dissertations, and reading and borrowing books. Overall awareness of library services, especially electronic resources, has

Figure 3
Central Library of the University of Medicine and Pharmacy, Cluj, Romania, information desk



also increased. Unlike in the old library, where hardly anyone asked for instructions on searching, most users now want to receive more personalized instruction on database searching. The library has strengthened its role as an iconic symbol of the patron institution, and it may even be said that most of the students conceptualize the university as represented by the library.

Mount Sinai School of Medicine Gustave L. and Janet W. Levy Library

Submitted by Lynn Kasner Morgan, director

The Gustave L. and Janet W. Levy Library embarked on a substantial physical space renovation in 2009. Months of planning and fruitful discussions with faculty and students have shaped the library into a more welcoming and attractive place for work and study. The library's transition from a print collection to one that is primarily accessed electronically has allowed the library to extensively weed its print

journal and monograph collections and transformed the library from a collection-centered space to a user-centered space. The renovated library has been reconfigured with interactive study and collaboration, dedicated quiet study, and research spaces. Additionally, two new state-of-the-art computer classrooms have been constructed to support the library's educational programs and to help meet the institutional demand for instructional space.

The library's reference, circulation, and computing help-desk services were centralized and made more visible to more effectively answer the more than 35,000 questions received each year. A consultation space was developed to accommodate the growing requests from faculty to tap into the expertise of the library's information professionals.

To promote scholarly communication, a faculty collaboration space, equipped with teleconferencing and other technology, has been built (Figure 5). Improved areas for quiet and group study, an increased number of computer workstations, a centralized service desk, and an expanded archives

Figure 4

Central Library of the University of Medicine and Pharmacy, Cluj, Romania, interior view



department are all part of the redesign project. A warm and inviting lobby and library entryway, ideal for meeting colleagues and study partners, has been added (Figure 6). Expanded study areas with a variety of tables, comfortable chairs, and sofas help put users at ease for those long hours of studying. Two computer classrooms (one seating fifteen, one seating thirty-five) support library and institutional instruction programs. More worktables with improved seating, ideal for working or studying in groups, have been added, as well as an inviting leisure reading area, perfect for relaxing while reading a newspaper or magazine. Improved lighting, new carpeting, and a brighter color palette add to the ambience. Additional public computers provide additional access to the library's constantly increasing online resources.

The library continued to be open during normal hours throughout the renovation, although there were brief demolition periods during which areas of the library were not available for use.

University of Colorado Denver Health Sciences Library

Submitted by Gerald (Jerry) Perry, AHIP, director

The University of Colorado (UC) Denver Health Sciences Library (HSL) on the Anschutz Medical Campus is the premier academic health sciences library in the region, offering highly integrated and exceptional quality information services to a diverse array of constituencies on a rapidly expanding metropolitan Denver campus and throughout the state of Colorado. Its new library opened in October 2007 and was envisioned as a regional resource for the dissemination of quality health information and as a signature building on the new UC Denver health sciences campus on the former Fitzsimons Army Base in Aurora, Colorado. As a building, the HSL rests at the crossroads of the Anschutz Medical Campus and the Town Center of the Fitzsimons Redevelopment Authority, welcoming the campus and broader Aurora and Denver communities to the university (Figure 7).

Figure 5
Gustave L. and Janet W. Levy Library collaboration area



Figure 6
Gustave L. and Janet W. Levy Library entrance



Figure 7
University of Colorado Denver Health Sciences Library, exterior view



As a signature structure on campus, it reminds the community of the centrality of information in achieving the mission of the university in the areas of research, clinical care, and education of future generations of health care practitioners. With its patios, café, and gallery, the HSL offers a place of reflection and regeneration. It is a place of scholarship and a remarkable resource for academic success. Students, staff, and faculty are encouraged to use its resources, both in person and virtually. The library also welcomes the public and strives to serve the people of Colorado through its community service mission. The facility constitutes a unique asset with a comprehensive health sciences information collection in print, media, and digital formats. The essence of what it means to live in the beautiful state of Colorado

Figure 8
University of Colorado Denver Health Sciences Library, interior view



is woven throughout the building in its design, layout, and furnishings.

Notable features include a physical and digital knowledge hub, concrete construction for a quiet building that is sturdy enough to bear the load of over 215,000 print journal and book volumes, 24,000 linear feet of shelving on the 2nd and 3rd floors, collaborative workspaces, comfortable quiet study areas with 30 group study rooms optimally located throughout to reflect and support small group learning, wireless Internet access everywhere to support advanced mobile computing and communication technologies, and high-tech hands-on teaching, informatics labs. It is a user-friendly building with ample natural light, café, gallery, patios, reading and meeting rooms, a high-tech fire suppression feature in the rare book area, gallery space to host local and traveling exhibits, two 1st floor "information commons" areas with 50 workstations connected to campus network, and "green" building materials and concepts where feasible and affordable (Figure 8).

McMaster University Health Sciences Library

Submitted by Liz Bayley, director, and Dorothy Fitzgerald, AHIP, retired director

The McMaster University Health Sciences Library \$8.6 million renovation project was completed in May 2007 (Figure 9). A priority for the renovation project was to create an atmosphere that encourages collaboration and inspires learning and discovery. Elegant design elements, artwork, and enhanced lighting have resulted in a welcoming ambiance, and the café at the dramatic new entrance is a popular gathering place. The final result is a wonderful transformation of the library, which first opened in 1971. The focus of the design is on "people space," with more group learning and quiet study space. In addition to 100 new study spaces, the renovation includes a dramatic

Figure 9
McMaster University Health Sciences Library, exterior view



2-story reading pavilion and 15 group study rooms. The library now seats approximately 760 people, with a mix of lounge chairs, individual study carrels, and a range of e-tables and study tables for collaborative work.

Artwork is a key feature. The *Tree of Knowledge* donor wall, by Newfoundland artist Conrad Furey, looks spectacular just inside the library entrance. More artwork is found throughout the library, including etched glass panels and a large Inuit whalebone sculpture in the Heersink Reading Pavilion.

Notable features of the library include a learning commons, e-classroom, open reserve, additional group study rooms, a new reading pavilion, the history of health and medicine room with a fireplace, and a café. Reflecting the critical need for digital access to information in health sciences and the importance of the library's historical collections, the latest in technology has been incorporated into the design, including wireless access throughout, hundreds of electrical and network connections to accommodate personal and library laptops, a learning commons, and a new e-classroom with twenty-four laptops. Approximately ninety computers are available for library users.

All window space has been designated as "people space," and the much reduced print collection of

books and journals is now located in the center of the lower level. The reserve (short-term loan) material is now housed in the new reserve/multimedia room, allowing students to browse this very high demand collection of books. The large open stairwell was reduced, and the staircase itself was repositioned, with the bottom section reoriented to face the reading pavilion. The underside of the staircase is finished in elegant wood strips to match the ceiling of the reading pavilion (Figure 10).

The elegant history of health and medicine room—with its cove ceiling and recessed lighting, gas fireplace, comfortable leather chairs, and warm cherry wood bookcases around the perimeter of the room—is a very popular place for quiet study and reflection. The rare book room and the archives, rooms located adjacent to the history of health and medicine room, are lovely spaces for those who need access to these special collections.

The new two-story reading pavilion not only adds more floor space to the lower level of the library, but because the upper level overlooks this new space it provides a spectacular view of the campus (Figure 11). The reading pavilion is separated from the rest of the lower level by a wall of etched glass panels by artist Mark Raynes Roberts. Each of the twelve etched panels represents a province or territory of

Figure 10
McMaster Health Sciences Library staircase



Canada. The concept of “library as presentation space” has been incorporated into the design, so that both the reading pavilion and the history of health and medicine room will be used for special faculty events, such as major announcements and poster presentations.

TRENDS AND CHALLENGES

Although these projects are very diverse in scope, size, and format, some trends can be observed in a number of features that commonly appear:

■ **Flexibility:** Flexibility is the cause célèbre. Almost every library mentioned flexibility in the design of almost all staff and public spaces. One example is classrooms that are used by students for a defined period of time and then are open for study space.

■ **Cafés:** Increasingly, academic health sciences libraries are adding cafés either in renovations or in new building projects and using them as much for informal meeting and work sessions as for socializing. Some are located in the library, while others are located nearby.

■ **Group study rooms:** Nearly every academic health sciences library project mentions group study rooms; group study rooms in hospital libraries were mentioned less frequently. The ratio of rooms to clients served is highly variable, but all are designed to be flexible and frequently include plasma screens and white boards. Many are reservable and include movable furniture. Although group study space is needed to accommodate various learning styles, individual study spaces for contemplation are still highly desirable.

Figure 11
McMaster University Health Sciences Library Reading Pavilion



- **Information/learning commons:** Commons tend to come in a variety of shapes and sizes. There may not be a consensus for defining a learning commons versus information commons; however, learning commons tend to contain all aspects of the information commons but, to a greater extent, are clearly and explicitly aligned strategically with institution-wide visions and missions and offer a fuller range of technological resources that are more seamlessly integrated. In many cases, the traditional library reading room has morphed into the information commons.
- **Single service desk:** Nearly a dozen libraries report creating a single point-of-service desk. These appear to be effective for today's information service requirements, but some are concerned about their ability to adapt to different or reduced staffing patterns. Adamson sees future libraries operating with consulting teams with collaborative relationships extending over significant periods of time rather than acting as a transaction-based service provider. In this scenario, the service desk will shrink in importance in terms of customer interaction, while the library staff members' desks will become the focus for delivery of information-consulting services [8].
- **Conference rooms:** Multiple, small, large, and "ceremonial" conference rooms, frequently reservable, are also reported as essential elements of the twenty-first century health sciences library.
- **Compact shelving:** Van Orsdel and Born believe there is "evidence that many librarians are ready to give up paper for good" [9]. Several libraries in the survey have supported this position by putting newer print materials on open shelves and older parts of the collection in compact shelving, as they move to nearly fully electronic collections.
- **Artwork:** Artwork from prominent artists, faculty, and students is being used more frequently to make the library as attractive as possible. Often, these works honor the distinguished writers, teachers, benefactors, and other important individuals who have greatly enriched the intellectual life of the institution.
- **24/7 access:** Library service, like every other public service, needs to change to fit the needs of customers. Today, library users expect the services they use to be available when they are. Libraries in this area are marching steadily toward the goal of being "open" in a manner of speaking, twenty-four hours a day, seven days a week.
- **Wireless connectivity everywhere:** Nearly all libraries are now providing wireless Internet access via either an open, unsecured wireless network or secure connections through the use of virtual private network (VPN) software. Some permit users to borrow a wireless networking card to use with their personal laptop computers.
- **Specialty functions:** Libraries report providing space for specialty functions such as videoconferenc-

ing, a history of health and medicine room (with fireplace), a reading pavilion for special events such as research day poster sessions, and open reserve reading rooms. Jenkins envisions less space for technical services and collection storage; more space for special collections and digital curation; more numerous and more varied user spaces, some with specialty functions; and more partnerships with other units having similar missions, perhaps shared space [10].

Planning a new health sciences library and/or remodeling one presents tremendous challenges. In addition to space challenges created by rapid technological changes affecting teaching, learning, and research; changes in teaching methodologies; the need to build a sustainable model for scholarly communication; decreasing rates of financial support; skyrocketing prices for information access; and demand from users to access materials online, there are challenges related to poorly sited buildings that make them unsuitable for renovation for a variety of reasons (too many floors, spaces of the wrong size). Remodeling may reveal other challenges such as providing access for people with disabilities, replacing mechanical and electrical equipment, or correcting other structural deficiencies.

Noise, cleaning, plumbing, heating and ventilation, and lighting also create challenges. Today's libraries plan for as much sound-proofing and baffling as possible. Zoning for quite and silent study areas and use of white noise are helpful, but noise travels, particularly down staircases. They choose colors that hide dust and dirt. Pale floor tiles do not hide coffee and soda spills. Dark furniture looks expensive (and often is), but it shows dust, fingerprints, and cup rings. Motion sensor lights help make the library "green" but are not recommended for staff offices.

CONCLUSIONS

The survey results confirm a trend reported by Kronenfeld [11] that health sciences libraries are

continuing to migrate from print-based collections to digitally based collections. Library space has become too valuable to be so heavily used for storage of long back files of lightly used journals. As less collection space is required, technology provides greater accessibility and opportunities to address changes in curriculum and scholarly communication models. Some health sciences libraries report losing space as they move toward library space for "community" building and generally reconstruct the traditional concept of the "library as a place" to the "institution's center for information." They are becoming more proactive in finding innovative ways of using or retooling space for concentration, collaboration, contemplation, communication, and socialization as the influence of the library extends throughout the parent institution, while moving toward a clearer operational vision of the library as the information nexus of the institution and not merely as a physical location with print collections similar to that described by the AAHSL *Charting the Future of Knowledge Management in the Academic Health Center* [12].

Some individuals question whether the library as place will continue to exist as information becomes increasingly available electronically and as budgets tighten; however, there is some evidence in this building survey to support the belief that libraries will continue to be built and/or remodeled as new health care facilities are constructed. New construction and renovation will continue because what goes on inside libraries now is different than what was planned to go on inside of them when they were built, just as what goes on inside of them today will be different than what goes on inside them tomorrow.

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Photos for the McMaster University Health Sciences Library provided courtesy of McCallum Sather Architects, Hamilton, Ontario, Canada.

Table 1
Health sciences library building projects, 1999–2009

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
A. T. Still University Memorial Library, Kirksville Campus	Doug Blansit	NA	New: May 2008	\$10 million building, library = @ 4/9 of building	NA	NA	Library includes simulation labs, distance education capability, and group breakout rooms outside the library. 2 breakroom rooms are in the library.
Albert Einstein College of Medicine of Yeshiva University D. Samuel Gottesman Library	Judie Malamund	Shepley, Bulfinch, Boston, MA	New: October 2009	\$2+ million	10,000	NA	Approximately 10,000 sq. ft. of essentially open space was divided to provide a 24/7 room, a quiet room, and 5 group study rooms. Circulation and reference will be combined at 1 desk. All areas have or will have new lighting, furniture, and carpeting. 24/7 room looks a bit like a diner with booths and a "bar" with barstool seating for working on computers.
Alberta Children's Hospital Knowledge Centre	Heather Ganshorn	NA	New: September 2006	NA	NA	NA	The knowledge centre is part of the newly constructed Alberta Children's Hospital. The medical library is, however, a separate unit, falling under the administration of the Health Information Network, a partnership in which the University of Calgary (U of C) Health Sciences Library coordinates library services to all health care facilities in the Calgary region. Special features include information commons (8 PCs, plus a screen for instruction); PCs on the U of C network, rather than the local health region network, hence, users can access the U of C's full electronic collections from within the knowledge centre; 24/7 access by ProxyCard for selected staff groups and individuals (primarily doctors and nurses); and movable furniture (tables and chairs) region. Seating capacity = 16.
All Children's Hospital Medical Library	Patricia Clark	Karlsberger Architecture, Columbus, OH	New: December 2009	New hospital: \$400 million	Library: 2,600	NA	The library is part of the \$400 million construction plan as All Children's Hospital that will open the doors to a brand new, 9-story hospital and adjoining outpatient care center in December 2009, a few blocks north of the current building. The new facility will also feature a family resource library. Special features include: 24/7 access, an 800-seat conference/training room, a 10-station computer lab, and the separate family resource center in the adjacent outpatient care center.
American University of Antigua Medical and Health Sciences Library and Learning Resource Center	Majid Pathan	Sundaram Architects, No. 19 Kumarkrupa Road, Bangalore, India	New: December 2009	NA	41,000	NA	The new library will have 2 floors, with 4 blocks on each floor. Ground floor will have offices for the vice president and dean of library services and academic support, associate director, and assistant librarians; a common room; storeroom; technical processing; pantry; meeting room; and a server room. Special features include 10 group study rooms each with TV, ELMo, discussion space; cyber café with 200 desktops; and access 18 hours a day.
Avera St. Luke's Bunker Medical Library	Roxie Olson	NA	Renovation: May 2009	NA	500	NA	The library was moved due to an operating room expansion project that took existing space. Library space was downsized from 2,100 sq. ft. to 500 sq. ft.; seating was reduced from 15 to 3. Book collection was cut in half, and the journal collection was cut by 6 years—from 1990–current to 1996–current—and room for 3 current years in the library proper space. A storage area that holds 1996–2006 is on the opposite side of the complex. Library provides 24/7 access.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
California Hospital Medical Center Moore-White Foundation Medical Library	Brett VanBenschoten	NA	Renovation: March 2009	\$90,000	1,500	NA	Project permitted expanded seating space due to use of compact shelving. Special features include a reading room that doubles as conference room with built-in digital projection computer setup, 24/7 access, individual networked computer stations, living room seating area, 52" LCD TV with built-in DVD player, study skills seating area, private office for medical residents to address HIPAA concerns, expanded online resources, and public seating for 23.
Carillon Clinic Health Sciences Library	Karen Dillon	NA	Combo: renovation/ new: March 2008	NA	1,500	\$60,000 approx.	Library space was downsized from about 4,000 sq. ft. to 1,500 sq. ft., with public seating for 23. Location is now in the medical education center and adjacent to the resident classrooms. Resident use has increased, and hits to the library page have increased approximately 30% within the past year as result of promotion and increased focus on evidence-based practice and nursing research. Clinicians and staff have virtual access to many library resources negating the need to spend time in the physical space. The library lost its conference room but gained a small study room with 3 computers. Journal shelves were reduced by 3/4 due to online content and lack of storage space. Simulation lab is in adjacent area. Videoconferencing was installed across system during the past 6 months; classrooms and large meeting rooms in the adjacent area are equipped. 80% of project used recycled furnishings and equipment from previous space.
Case Western Reserve University Health Center Library (of the Cleveland Health Sciences Library)	Virginia G. Saha	Collins Gordon & Bostwick Architects (now Bostwick Design Partnership), 2729 Prospect Avenue, Cleveland, OH 44115	Renovation: October 2003	\$1,085,357	43,000	\$259,273	Project involved renovation of the public areas of the health center library serving the schools of dental medicine, medicine, and nursing. A completely new front entrance was installed; circulation and reference desks were combined; spacious study carrels of different configurations can accommodate single or multiple users; all new furniture, including new leather lounge furniture, was obtained; group study rooms were upgraded with modular furniture; high-tech multipurpose classroom was created; and new carpet was installed throughout library. A separately financed project to install a fire-suppression sprinkler system and upgrade the lighting was carried out simultaneously. Additional bookshelves were added! Public seating available for 238 users. A special feature includes the technology enhanced classroom, level 2 < http://www.case.edu/visitac/library/tec/ >.
Children's Hospital and Research Center Oakland Health Sciences Library	Mina Davenport	NA	Combo: renovation/ new: January 2009	NA	1,100	NA	Library space was reduced from 3,700 sq. ft. 24/7 access is provided. Public seating capacity is available for 12 users.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
The Commonwealth Medical College Medical Library	Joanne M. Muellenbach, AHIP	Highland Associates, Clarks Summit, PA	New: June 2011	\$1.3 million	4,700	\$184,000 plus tax	At project start-up, the temporary library facility is approximately 4,000 sq. ft. with 80 individual seats including low, comfortable chairs with laptop tables; armchairs; small and larger tables; shelving for 500 core print titles; 30 journal titles; and 100 reserve textbooks. 6 walk-up public access computers with public printers and photocopiers are provided. An information services desk equipped with the Millennium Integrated Library System, is staffed by library professionals. The library is open 92 hours per week during the academic year, with extended hours during the exam periods. The new library facility, planned for 2011, will be approximately 5,000 sq. ft. and in addition to features mentioned above will include 2 group study rooms, 1 conference room, an information commons providing a dedicated space for hands-on, library, and academic informatics instruction; a library processing/break room; and an equipment storage room.
Creighton University Health Sciences Library	A. James Bothmer, AHIP	Commercial flooring	Renovation: January 2007	\$300,000	35,000	NA	Library installed new carpeting, replaced wood flooring in browsing area, and added a coffee shop. The cost reflects the cost of carpet and installation.
Duke University Medical Center Library*	Patricia Thibodeau, AHIP, FMLA	Internal architect and design office: Gregory Warwick	Combo: renovation/ new: September 2008	NA	16,897 sq. ft. lost	NA	The library 4th floor was taken for office space for the division of medical oncology. All journals with digital versions were stored, and duplicate titles were discarded. Journals only available in paper were stored if published before 1985; all post-1985 volumes were kept in the library. Books prior to 1995 were either stored or discarded. Changes included: eliminated 20 ranges; audiovisuals, indexes, and statistical report volumes moved from the mezzanine I to the 3rd floor; restrooms built using existing staff work and office space; staff space was taken from public areas on the mezzanine; 6 modular computer units, with power and network connections, placed on the mezzanine; high-tech conference room created on the mezzanine; "cyber cafe" to be converted into a faculty business center by relocating reference and reserve collections and service desk. We are also moving to 24-hour unstaffed access to the library. Lost 100 seats (including 27 individual study rooms and 1 conference room) but constructed a new high-tech conference room; modular group study carrels added to existing mezzanine, as well as wiring for network jacks and power for computers.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
East Carolina University (ECU) William E. Laupus Health Sciences Library	Dorothy A. Spencer, AHIP	Walters, Robb, Callahan & Pierce, 530 North Trade Street, Suite 301, Winston-Salem, NC 27101; 336.725.1371	New: May 2006	Library: \$12.5 million, building: \$60 million	72,000 library, 300,000 building	inclusive	Library occupies 72,000 sq. ft. of a 300,000+sq.-ft. health sciences building, designed to relocate the college of nursing and college of allied health sciences to ECU's medical campus. In-house library use is now predominantly by nursing and allied health students, researchers, and occasionally clinicians. Technology areas, the information commons, and the history suite are more highly used. Special features: teleconference room, 32-station technology classroom, computer lab, 20+ small group study rooms, exhibit gallery/special events space, history reading room, archives and conservation lab, 2 small collaboration rooms, biological models stacks area, atrium and grand stairs in entrance hallway, information commons, main stacks, and reading room crowned by a half dome ceiling with clerestory overhead windows on the south face and massive 2-story windows on the north face, a fully wired network and wireless environment throughout the building, and task lighting in each aisle of the stacks area.
Florida International University The Medical Library at the Herbert Wertheim College of Medicine	David Boillard, AHIP	NA	Temporary facility: August 2009	NA	2,922	NA	The library is situated in a temporary location in the university's main library facility, using existing furniture. Because of the virtual nature of the collections, space for only 5 stack ranges was necessary. Planning has begun for a new facility with a completion date of 2012 or 2013. Public seating accommodates 88 users.
Florida State University Maguire Medical Library	Barbara Shearer, AHIP	NA	Renovation: January 2009	\$231,000	4,000	\$155,000	The library started with approximately 250 print journals from 1995–2008 and back volumes for about 150 of them, plus 4,500 books. These print resources were not used, and the students wanted more "library" space. We moved all but 1,000 print books and a small print browsing journal collection to a 24/7 study carrel room. Now, we have the best of all worlds: a 24/7 very quiet study carrel room plus the print collection; nice, sunny library space, designed for student individual study; and student community space located elsewhere in the building that provides 4,000 sq. ft. for every 30 students. Each student community space has a commons area plus 4 large group study rooms. Space includes a conference room with large-screen LCD monitor. A small room that was an individual study room will have a cardiopulmonary simulation model installed soon. Public seating capacity is 44.
Hartford Hospital Health Sciences Library	Shirley Gronholm, AHIP	NA	Renovation: October 2008	\$80,000, approx.	NA	\$60,000 approx.	Library was located in 2 locations of approximately the same size; 1 location was closed and integrated into the other location. It is difficult to determine a total expense because some construction/renovation expenses were integrated into other budgets (i.e., the engineering department took care of asbestos abatement in 3 rooms, replacing the floor tiles; paint department did the painting and wallpapering). Of the 2 locations we originally occupied, we were left with a less desirable location that is at the back side of the hospital and out of the main traffic flow of the institution. Seating decreased by 50%.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
Holy Cross Hospital Medical Library	Cynthia Phvillater	NA	Renovation: July 2007	NA	NA	NA	The renovation project made better use of existing space and removed 1 stack of bound journals to provide more computer workstations. This is a small but very busy hospital library, offering 24/7 access to clinical staffs, 3 residency programs, and other teaching programs. The architect drew up plans to librarian's specifications after an initial floor plan was drawn by the librarian for improved space use. The project increased computers from 5 to 9, created individual privacy modules, and added 3 additional study carrels as well as wireless access. A large table is used for groups or others for research. The library has a small print journal collection, mostly online.
Howard University Louis Stokes Health Sciences Library	Ellis B. Beteck	Hillier Architecture, 500 Alexander Park, Princeton, NJ 08543-6395	New: 2001	\$27 million	80,000	NA	The building is 4 stories and 80,000 sq. ft. with a building plan organized so that each level is divided into 3 zones. The 1st zone is dedicated to special functions. The 2nd zone includes majority of staff offices and most of the stacks for back issue periodicals and monograph collections. The 3rd zone houses the majority of the users' seating/study space. The library has space for 400,000 books and 630 Internet portals. All seats (600) are wired with power and data ports to facilitate easy laptop computer use and data retrieval. Special features: 8 problem-based learning rooms, a rotunda room, small group study rooms, staff lounging, video conferencing room, faculty room, telemedicine center, grand atrium, distance learning center, special collections reading room, presentation/conference room, exhibit display room, student lounge/vending room, and vaulted reading gallery.
Indiana University School of Medicine Library	Julie J. McGowan, AHIP, FMLA		Renovation: January 2010 estimated	\$4 million	NA	NA	The library is becoming a center for knowledge informatics and translation with a focus on electronic resources, interdisciplinary knowledge management, and information consultation. The top 2 floors, exclusive of the offices, of the 50,000-sq.-ft. library building are being renovated into a computer testing and teaching lab for 160 students, a team-based learning classroom for approximately 140 students, small group study rooms, and high-tech carrels.
Jersey Shore University Medical Center (JSUMC) Bookert Health Sciences Library	Catherine Mary Boss, AHIP	Granary Associates, 411 North 20th Street, Philadelphia, PA 19130	New: January 2001	\$1.5 million	5,000	\$247,016	The Booker Health Sciences library brought together 3 distinct components of health care information—medicine, nursing, and consumer health—into a library that has beauty and functionality. The construction project was funded in its entirety with private monies. The library is window-lined, furnished with cherry-wood, and easily accessible for staff and the public. A single customer service area serves as the focal point for both staff and the public. This project combined a school of nursing library that had closed and a medical school and as such reduced the combined seating capacity. The library features 24/7 access; high-density electronic shelving; 4 free-standing display cases for art pieces inside library; 2 display units flanking the library doors for JSUMC authors; a centrally located customer service desk; areas for quiet study, leisure reading, and collaborative work; and 32 public user seats.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
Kalispell Regional Medical Center Library	Heidi Sue Adams, AHIP	In-house architect, Marcello	New addition: 2012	NA	2,000	NA	The medical library will be part of a new master site plan currently being drawn up. The facility will be expanding and moving, as well as building a new 2nd floor for the hospital. The new larger library will be located in that same general area as the expanded emergency room, new pharmacy, and new operating room suites. It will be a minimum of 2,000 sq. ft. The library is currently in the basement and has been operating at less than 900 sq. ft. In addition, the coffee shop will be expanding, and 1 corner of it is tentatively planned as the consumer health area with books available for purchase. Specific details are not yet finalized.
Lake Hospital System Medical Library	Holly Sheldon Kimborowicz, AHIP	Jim Wallis Perspectus Architecture, Cleveland, OH 44120	New: October 2009	NA	2,100	NA	The library team is finalizing plans with the architect but plans to open in October of 2009. The library is located in the medical office building attached to a new hospital also opening in October of 2009. The library will be located on the 1st floor, adjacent to the main lobby/outpatient area of the new hospital. A separate consumer health information section from the professional medical library is included in the plan. Area includes an AV room that may include videoconferencing and that can be used by consumers and families (support groups ⁷) as well as health professionals and small group study. Hospital and medical staff have 24/7 access with the ID badge reader.
Louisiana State University Health Sciences Center—New Orleans Ische Library	Deborah Sibley, AHIP	NA	Renovation: June 2009	NA	5,000	NA	To accommodate student and building needs, the AV and current periodicals section of the 1st floor of the library is being repurposed as a 24/7 study area. A coffee bar (Starbucks products) will be open and staffed several hours during the day. There are 2 study rooms and several areas for art or scientific displays throughout the area. Special features: coffee bar, information commons, moveable furniture, 24/7 access, 2 study rooms, and public seating for 75–90 users.
Louisiana State University Health Sciences Center—Shreveport	Marianne Comegys	NA	Renovation: May 2007	\$22,000	508	\$40,200	Until the renovation, the room (400 sq. ft.) housing the historical collection of more than 3,000 books and 500 medical artifacts was not an appropriate area for displaying items or for users conducting historical research. A donation from Medical Center Clinics enabled removal of an interior wall that added over 100 sq. ft. Space was renovated, new carpeting and updated light fixtures were installed, and electrical capacity and computer wiring was expanded. New shelving and display cases were purchased; a new conference table and chairs and a new computer station and workspace were added to form a history of medicine room that is now an inviting space that promotes the history of the health sciences and preserves the collection, while providing a versatile meeting space that captures the elements of the history of the discipline of medicine.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
Mayo Clinic Libraries Plummer Library	J. Michael Homan, AHIP, FMLA	Internal architectural services	Renovation: September 2007	\$1.4 million	15,000, est.	NA	The main goal of the 2007 renovation of the 2 main floors was to increase learning and shared common spaces by transferring lesser-used archival bound journal volumes to remote storage in climate-controlled warehouse space in Rochester and to the Minnesota Library Access Center, located in specially constructed and climate-controlled limestone caverns. The transfer of bound journal volumes to remote storage (now serviced through electronic document delivery) allowed the creation of new shared learning spaces including a combined retail professional bookstore and cafe with large-screen TVs, and special features such as 8 group study rooms, cyber cafe/information commons, enlarged professional bookstore, relocation and enlargement of technical processing offices, creation of additional monograph storage space, and relocation of research librarians' offices. See <i>featured library building projects</i> .
McMaster University Health Sciences Library	Liz Bayley	McCallum Sather Architects, North Hamilton, ON, Canada	Renovation: May 2007	\$8.6 million (Canadian)	44,268	NA	Public seating for 760 users (an extra 100 seats). See <i>featured library building projects</i> .
Mercer School of Medicine/Memorial Center Health Sciences Library	Jane Bridges, AHIP	Hospital facilities services	Renovation: April 2008	NA	NA	NA	The library was moved to a renovated auditorium to accommodate a new medical school that opened on the hospital campus as the second campus of Mercer University School of Medicine. A new construction is anticipated for the library/classroom/lab building. Current facility includes an 'on stage' computer and model lab.
Midwestern University Library, Downers Grove, IL	Natalie Reed, AHIP	DWL Architects, Phoenix, AZ	New: August 2001	NA	16,000	NA	This project is part of a new building that also houses lecture halls. The project includes the addition of group study rooms, a 12-seat computer lab, a 38-seat computer lab, and a separate 24/7 study room, bringing total available public seating to 400.
Midwestern University Library, Glendale, AZ	Natalie Reed, AHIP	DWL Architects, Phoenix, AZ	Renovation: February 2009	NA	18,800	NA	This project resulted in the expansion of the library from 12,300–18,800 sq. ft. by taking over adjacent offices and expanded available public seating from 240 to 310. Special features included: group study rooms, a 12-seat computer lab, a 6-station group computer study room, an elevator, and restrooms.
Mount Sinai School of Medicine Gustave L. and Janet W. Levy Library	Lynn Kasner Morgan	FX Fowle, New York, NY	Renovation: August 2009	\$2.5 million	32,000	NA	For description of the project including vision and goals as well as drawings, see http://www.mssm.edu/library/reference/news/renovation08.shtml and http://fusion.mssm.edu/levy/renovation/ . Overall seating capacity has not changed. See <i>featured library building projects</i> .
New York University Health Sciences Libraries	Colleen Cuddy, AHIP	NA	Renovation: winter 2009	NA	6,000	NA	Renovation project increased study space for stacks, added high-density shelving, some additional study room, and increased public seating by 40 seats.
Northwestern University Galter Health Sciences Library	James Shedlock, AHIP, FMLA	NA	Renovation: 2008	\$45,000	NA	NA	The project renovated 2 existing small group study rooms to accommodate new technology. Both rooms have flat panel screens connected to the table-top outlets, and 1 of the rooms has an additional smart whiteboard. Also, some shelving was removed to provide more user seating space by condensing bound journal volumes that have been converted to electronic only access. Additionally, floating whiteboards and 2 floating flat panel screens were added for use anywhere inside the Galter Library.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
Northwestern Health Sciences University Greenawalt Library	Della Shupe	E.M. Bransstrom Associates, Minneapolis, MN	New addition: December 2008	NA	Library: 14,000	NA	Northwestern Health Sciences University is a small health sciences university serving approximately 800 students. The library occupies the top floor of a new 3-floor addition to the existing building. The seating increased by approximately 22% to 220 seats; some additional seating is not included in this number (e.g., small movable seating in the stack areas, 20 seats in a library classroom that is also used as a computer lab, etc.) Notable characteristics of the library include 13 A/V/study rooms of various sizes, faculty study, library computer classroom, moveable casual seating areas, and a variety of types of study areas (casual, carrels, study rooms, tables, etc.).
Oakwood Southshore Medical Center Medical Library	Diana Ballant	NA	New: June 2008	\$150,000 approx.	@3,200	\$30,000 approx.	The library—part of a new, 5-story patient tower that includes a new emergency room, operating rooms, private patient rooms, cafeteria, and other facilities—was built at the “downriver” campus about 25 miles south of Detroit; the original building dates from the 1960s and the move occurred in the summer of 2008. Existing shelving, computer workstations, and other furniture was used to keep costs down because the original library was only 4 years old. Expanded space fostered more comfort and was more welcoming. Lighting and shelf access improved, even though no additional shelving was purchased. Moveable furniture was a big plus. Upholstered armchairs on casters were equipped with small circular writing surfaces that could easily be swiveled to a comfortable position and were a big hit. 24/7 access for the physicians is an American Osteopathic Association certification requirement. Seating for 20 is provided.
Oncology Nursing Society Library	Mark Vrabel, AHIP	McCormick Architects, Pittsburgh, PA	New: August 2002	NA	103,014	NA	The library is part of the national office of an association and occupies 2 rooms in the office. Square footage data, etc., are for the building as a whole.
Parkland Medical Center Library	Mary Guessford	NA	Renovation: March 2006	NA	250	NA	Renovation expanded the library from 2 small couches, which realistically seated 2 users facing a coffee table in between, to having a long desk with 3 chairs and 4 workstations, as well as 2 lounge chairs for people to sit or sleep in. In addition to serving as a library, this room is also the doctor's lounge.
Penn State Hershey (Penn State University) George T. Harrell Health Sciences Library	Cynthia Robinson, AHIP	Radelet McCarthy, Pittsburgh, PA	Renovation: December 2009	\$6 million approx.	10,000	\$50,000 approx.	The library ceded 10,000 sq. ft. on the 2nd floor, currently being renovated as a simulation lab, computer classroom, and 24-hour study area. Library program space is being reconfigured to take advantage of compact shelving, preserve both quiet and group study areas, and increase public access computers. Notable features of the reconfiguration include a simulation lab, objective structured clinical examination/problem-based learning group study rooms, a 24/7 study area, conference rooms, and updated computer lab. Number of public seats did not change.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
Poudre Valley Health System Medical Library	Jerry Carlson, AHIP	NA	Renovation: autumn 2002	NA	2,160	Used existing	This renovation remodeled existing space in hospital. Key desires were to separate reading area from computers and copier; provide straight lines between doors for more efficient use of space; create an ADA-compliant phone booth for confidential calls, especially returning pages; and provide windows onto hallway. The library is located at basement level, so outside windows were not feasible. 24/7 access is provided via code lock. 44 user seats are available, including 8 at computer stations.
Providence Hospital Atlin Gulha MD Library	Rose Marie Leone Winiewicz	Wilmet/Sanz, Gaithersburg, MD	Renovation: November 2002	\$250,000	3,000	\$28,000	This project was a major renovation/construction of existing space (operating room suites). Library staff was actively involved in the planning and design of the library. The library has an adjoining conference room that is shared by several other departments. The library also includes 2 offices, a workroom, kitchenette, and a room to store AV equipment. After-hours access is via a card access system. User seating capacity is 26–30.
Seattle Children's Library and Information Commons	Susan Klawansky, AHIP	HKS, Dallas, TX	Combo: renovation/new: June 2007	NA	2,800 approx.	NA	The wing in which the hospital library resided for 25 years was demolished in 2004. For the next 3.5 years, the library operated out of a modular building in the parking lot. In June 2007, the library moved back into the hospital into newly renovated space. The library staff worked from the beginning with the architectural firm hired by the hospital to design multiple new and renovated areas. We advocated for the prime location that we were ultimately given and for appropriate square footage based on surveying other pediatric hospital libraries. From the start, library staff guided the design process, educating the architects on the unique needs of libraries and paying close attention to every detail. The result has been a very well-received space that includes a conference room and 24/7 access that is often overflowing with users of the available 34 seats.
Spartanburg Regional Healthcare System Health Sciences Library	Tonia Harris	NA	Renovation: October 2005	NA	3,000	NA	Hospital administration decided to turn existing library open space into an auditorium, so a wall was put up and lots of books and journals had to be tossed in anticipation of smaller space. A new 100-seat auditorium is used almost daily and is reserved electronically. Noise level in the auditorium is occasionally heard in the library but is not obtrusive. The library provides 24/7 access for physicians and residents. The library now has a computer room with 6 computers sharing 1 printer. Total space was reduced from 6,000 sq. ft. to 3,000 sq. ft., and seating was reduced from about 40 to 20.
St. Patrick Hospital and Health Sciences Center for Health Information	Dana Kopp	NA	New: March 2002	\$855,265	5,300	\$53,554	Notable features of this new construction include a humidity/climate-controlled archive room, a small classroom/conference room, 10 computer carrels, 4 tables, 6 study carrels, approximately 3,078 linear feet of shelving for collections and journals, etc., 2 seating areas, and a 10 ft.×20 ft. display case.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
State University of New York Upstate Medical University Health Sciences Library	Cristina Pope, AHIP	NA	Renovation: June 2007 and April 2008	2007: \$315,109, 2008: \$348,012	NA	2007: \$2,516, 2008: \$89,581	The 2007 renovation relocated 2 computer classrooms to the library, freed up space in another building for lab space, and added 30 computer seats, 2 office seats, and 12 group study seats. Ranges were removed, offices shifted, and 2 computer classrooms plus offices and group study rooms were added. The 2008 renovation provided 12 teaching faculty offices and a conference room to be relocated to the library to accommodate lab renovations. Faculty will remain in offices for 18 months or until completion of lab renovations. When they depart, the "offices" will become group study rooms. Space was freed up by shifting tight the bound journal collection. The empty ranges were then removed. Conference room space was previously unused space and has now finally found a purpose.
Temple University Simmy and Harry Ginsburg Health Sciences Library	Mark-Allen Taylor	NA	New: 2009	Education building: \$160 million	Education building: 480,000, library: 50,000	NA	The Simmy and Harry Ginsburg Health Sciences Library is located in the new Temple University Medical Education and Research Building on North Broad Street. The stunning new library serves the schools of medicine, dentistry, and pharmacy; the college of health professions; and the Temple Hospitals and offers the services and resources once housed in the Kresge and south libraries, with more available study space, group meeting rooms, and instructional spaces. Special features include: over 175 public workstations; seating for nearly 1,000; 2 classrooms, 1 of which can be converted into a conference room; more than 30 group study rooms; wireless connectivity; 10 collaborative learning rooms; and 1,000 user seats.
Texas A&M University Medical Sciences Library	Joe Jaros	NA	Renovation: October 2002	\$396,000	44,000	\$198,000	The project largely renovated the public areas of the library, including the computer lab. The entire library, both public and staff areas, was recarpeted, and the walls in the public area were repainted. Having gone to a single service point, the old circulation and reference desks were removed, and a new, circular, easily accessible service point was designed and built.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
Tufts University Hirsh Health Sciences Library	Eric D Albright, AHIP	DiMella Shaffer, Boston, MA; Strekalovsky Holt & Raymond, Natick, MA; MFPA, Natick, MA	Renovation: September 2008, renovation: May 2004, renovation: April 2003	\$15 million (total project), 2004: \$500,000, 2003: \$500,000	12,262 (4th floor), 10,000 (5th floor), 14,808 (4th floor)	NA	The 2008/09 Sackler Center renovation project included substantial improvements: 4th floor renovations created a campus center, expanded stairway and elevator access to all floors, and an expanded library café. Study and circulation areas gained more light. Computer stations, leisure reading materials, and a TV lounge were incorporated into the floor's new design. High-speed wireless access was installed throughout the building. Some space was transformed into new student affairs offices. Library staff offices on the 4th floor were relocated to join other 6th floor staff offices. 4th floor seats 75. A reading room and additional 50-seat classroom are currently under construction on the library's 5th floor. The 2004/05 renovation divided the 5th floor into an open/flexible computer space that can be partitioned into smaller classrooms, small group study spaces with networked terminals, computer teaching labs, public workstations, and stacks. Staff offices also moved to 6th floor, 250 public seats. The 2003/04 renovation project altered the 4th floor entrance level by adding a café and modifying the information/circulation desk and public workstations. Total library seating equals 850.
Tulane University Rudolph Matas Library of the Health Sciences	Neville Prendergast	Lisa McDonald, Facilities Services	Renovation: November 2008	\$208,173	16,997	\$92,529	The seating capacity was increased as the redesigned areas were made to accommodate more seating with coffee bar, added study rooms, and lounge chairs in the reading room. The impact is that more students are using these areas and the library than before. Additionally, the residents are making use of the new space and like the new look and feel. The faculty is impressed with the renovation and changes. Features include 24/7 access, moveable furniture, a small cafe, study rooms, and increased computer lab capabilities.
University of Arizona Health Sciences Library*	Gary Freiburger, AHIP	NA	Renovation: August 2006	\$450,000, approx	16,000, approx	\$350,000 approx.	The 4th floor of the building, previously housing the monograph collection was emptied and replaced with a newly carpeted open area divided into 3 spaces with "office landscaping." Moveable furniture allows the space to seat 1 entire college of medicine class in a single group or in many small groups. Monographs were moved to the 3rd floor with bound journals. Compact shelving was added to the 3rd floor. Some study carrels were replaced with shelving units. Some shelving from the 4th floor was added to the 3rd. 12,000 linear feet of bound journals were discarded. Study seating removed = 150; flexible classroom seating added = 120.

* See the January 2010 issue of the *Journal of the Medical Library Association* for a case study on this project.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
University of Arizona (U of A) College of Medicine Health Sciences Library—Phoenix	Jacqueline Doyle, AHIP, FMLA	NA	Combo: renovation/ new: summer 2006	NA	1,330	NA	The library is located in the historic 1910 Domestic Sciences Building on what was the Union High School campus in central downtown Phoenix. The library has lovely high ceilings and big windows, is very light and bright, and has difficult acoustics, although it has a great central location and is core to the Phoenix Biomedical Campus, along with the Arizona State University College of Nursing and Biomedical Informatics, T-Gen, and ultimately the U of A College of Pharmacy and the Nursing and Allied Health Programs that will form a tri-university campus. Notable library features include an adjacent computer classroom with 14 workstations plus instructor workstation and public access computer workstations in the library (11 sot of information commons, 2 tables with 8 movable chairs, and 1 confy chair; 20 user seats).
University of Arkansas for Medical Sciences Library	Mary Ryan, AHIP, FMLA	Internal services	Renovation: September 2007	\$100,000	10,000	\$90,000	This project provided a glass wall to divide the 1st floor in half, allowing 24/7 access for students and residents to most of the 1st floor using a card swipe. This has been very popular, and usage has grown in the nearly 2 years that 24/7 access has been available. Because the area is unstaffed when the library is closed, numerous security cameras and alarm buttons and 2 red phones connecting directly to the campus police were added. Staff offices and reference shelving space were converted to a vending machine room, quiet study room, and large open study area with soft seating for collaboration. All new furniture (some tables have electricity) and more electrical outlets were added. Space includes 4 high-tech collaboration spaces, videoconferencing room, electronic bulletin board, Civil War medicine collection room, and a bioethics collection room. 90 new user seats were added.
University of California—Davis F. William Blaisdell MD Medical Library	Terri L Malmgren, AHIP	Currier & Johnson, San Diego, CA	New: January 2007	\$40 million	14,000	NA	Library occupies the 1st floor of a 2-building construction and is part of a new education center that also includes schools of medicine and nursing. The library has 75 user seats.
University of California—San Diego Biomedical Library	Alice Witkoski	Pfeiffer Partners, Los Angeles, CA	Combo: renovation/ new: July 2006	\$17 million	51,098	\$10 million	The new biomedical library opened in August 2006 after the former biomedical library's inside was completely gutted and integrated with new building additions to create a new building that dramatically improves a variety of research, education, and study spaces. The building increased from 27,764–51,098 assignable sq. ft. Mandated by the state to reduce footprint for collections, compact shelving was installed for onsite access to older journal collections. Before migration to online journals, the library subscribed to more than 2,500 print journal titles; with this renovation, 100% of this collection from 1970 to present is onsite. Additionally, the top 22 heavily used journals are available back to 1950. The pre-1970 titles are stored locally in an annex with same-day or 24-hour turnaround and access available for older literature. Library is packed 80% during the week and 100% on the weekends! 24/7 use is at a premium! Available seating is 800.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
University of California–San Francisco (UCSF) Library and Center for Knowledge Management*	Karen Butter, AHIP	Harley Ellis Devereaux, San Diego, CA	Renovation: Uncertain: original May 2010	\$22 million	16,000	NA	The teaching and learning center (TLC), opening in spring 2010, is a realization of the UCSF strategic goals to develop educational facilities and infrastructures to keep UCSF at the forefront of health sciences education and meet the growing demand for health care professionals. The TLC will provide a technology-rich environment in support of interprofessional and interdisciplinary learning programs that focus on training future health professionals and scientists to become leaders in delivering high-quality care to underserved communities. The TLC will replace book stacks and study spaces on the 2nd floor of the campus library. Opening is uncertain with the hold placed by the State of California on all construction funding; 120 seats will be lost to create the TLC. See http://tlc.library.ucsf.edu . <i>See featured library building projects.</i>
University of Colorado Denver Health Sciences Library	Gerald (Jerry) Perry, AHIP	Centerbrook Architects and Planners Centerbrook, CT; Davis Partnership Architects, Denver, CO	New: October 2007	\$35 million	113,000	NA	
University of Connecticut Health Center (UCHC) Lyman Maynard Stowe Library	Evelyn Breck Morgen, AHIP	DuBose Associates, Hartford, CT	Renovation: 2 projects: 2005 and 2008	2005: \$1.7 million, 2008: \$1.1 million	2005: 31,000, 2008: 10,000, 5,000	NA	The 2005 renovation, the first since 1975, rebuilt the entire main floor including HVAC, lighting, and furniture. It also installed the UCHC wireless network; created a single point of service desk; built a 24/7 study area accessible after hours via swipe card from the library lobby area; created student academic computing support area that includes 3 classrooms with smart boards, a self-study area, and a staff area; and added 2 bathrooms. The 2008 renovation required consolidation of the entire collection of 200,000 books and journals and was designed to make room for study tables along the windows and individual study rooms on the top floor of the library. Group study areas with LCD screens were also added. The 24/7 study space on the main floor doubled in size, and the reference staff offices were relocated to the 2nd floor. A small café was converted in the lobby area outside the main library entrance. Total user seating is 300. See also Lyman Maynard Stowe Library Renovations < http://library.uchc.edu/renovation/overview.html >.
University of Maryland–Baltimore Health Sciences and Human Services Library*	M.J. Tooey, AHIP, FMLA	Ayers St. Gross	Renovation: 2007–present/ongoing	NA	30,000	NA	This project redefined the library by incorporating 2 campus offices into the building. In return, we redesigned our main floor and reference desk, brought 3 departments into 1 office suite, further defined our gallery space, and added high-tech collaborative learning spaces. More plans are in the works for additional collaboration space, so the project is ongoing. Features include redesign of information commons and art gallery, high-tech collaborative study space with flat panel monitors and special furniture, and redesigned and expanded office space for 3 departments and 3 other divisions. User seating is available for 900.

* See the January 2010 issue of the *Journal of the Medical Library Association* for a case study on this project.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
University of Massachusetts Medical School Lamar Soutter Library	Mary Piorun, AHIP	NA	Renovation: June 2003	\$1.5 million	41,318	\$800,000	This renovation improved the functionality of user service points, the overall comfort and general appearance of the library, and updated staff and public areas to incorporate current technology. The library has been using a team-based approach to operational problem solving since 1998 and included faculty, students, administration, and library staff in the renovation project. In 1998, the first facilities team was formed to examine the condition of the library and recommend both short- and long-term improvements. Four other teams were created with charges ranging from studying building options to following-up with problems after the renovation completion. The renovation project successfully improved the library's physical space by offering more seating options, better lighting, and increased accessibility to resources. The number of seats did not change; however, the type of seating did. Staff work areas were also enhanced by centralizing them by department and by creating a more open work environment.
University of Medicine and Pharmacy Central Library, Cluj-Napoca, Romania	Iona Robu	NA	New: October 2008	\$5 million	20,000	\$1.5 million	Library occupies 3 floors in a 6-floor facility; the other floors are occupied by deans' offices and conference rooms. Total seating capacity is 275. See <i>featured library building projects</i> .
University of Miami Miller School of Medicine Calder Library	Mary Moore	NA	Renovation: ongoing	\$1.2 million, as of December 2008	48,000	\$150,000	This renovation addressed student comments that the 35-year-old library building was "dark," "damp," and "a dungeon." Improvements included painting walls, atrium, ceilings, shelf end-panels, and entry doors; carpeting spaces previously covered in linoleum; removing burglar bars; sealing windows and the patio to prevent leaks causing mold and mildew; securing roof equipment tie-downs resistant to hurricane-force winds; and installing new chilling pipes. Library features a collaborative (high-tech collaboration space), central service desk, moveable furniture, flexible layout, space to recharge and relax (zero gravity chairs), individual faculty "getaways," coffee shop (still to be added), a new combined and centrally located service desk, outside patio converted to picnic and outdoor study space with umbrellas, and updated landscaping. Still to come: increased offsite storage of print materials for more computer and study space, a coffee shop, interactive video in the collaborative, and a 2nd computer training room to seat 50. Seating increased by 56 seats to 376.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
University of Minnesota Bio-Medical Library	Steve Llewellyn	Architect for Institute for Health Informatics (IHI): BWBR Architects, St Paul, MN	Renovation: November 2008	NA	4,000 (IHI)+2,200 library	NA	3rd floor renovation: 4,000 sq. ft. of library space given to IHI, a new interdisciplinary program established by the university's academic health center, which is administratively separate from the library but has natural collaborative opportunities. The library shifted its entire journal collection, condensing it to remove 1,200 shelving sections. This shifting cleared out enough stacks space to turn 4,000 sq. ft. over to IHI and to create 2,200 sq. ft. of new user reading space. We reused old computer tables to provide new group study tables and redistributed existing individual study tables and chairs along with soft seating to provide quiet study spaces by windows. The library has partnered with IHI, providing them room to renovate former library space to provide a conference room, collaboration space, and modular office space for their activities. User seating available for 6,200.
University of Minnesota Bio-Medical Library	Steve Llewellyn	NA	Renovation: November 2008	\$94,765	8,239	\$48,091	2nd floor renovation: One project was to renovate public computer area with modern computer furniture. New furniture provided more room per computer for collaborative work and provided modern wire management and installation of self-service printing and scanning stations. The other project was to integrate the formerly separate reference desk and circulation desk into 1 service point.
University of Missouri-Kansas City Health Sciences Library	Peggy Mullaly-Quijas, AHIP	NA	Combo: renovation/ new: ongoing	\$50,000	700	\$35,000	After the school of medicine opened up its foyer to the library via the addition of a glass wall, the enhanced visibility was an occasion for the library to use some endowment money to refurbish and rearrange the reference area. An information commons-like model was developed. In addition, the reference collection was reevaluated, with many volumes returned to the circulation collection. These shelves, plus the current shelves, will be removed, creating a new wireless study area. Tables and chairs were removed; club chairs and movable tables were installed.
University of Nebraska Medical Center (UNMC) McGoogan Library of Medicine	Nancy Woelfl	Design service: UNMC Facilities Management & Planning; architectural/ engineering: Olsson Associates; casework: Midwest Storage Solutions	Renovation: October 2006	\$553,745	2,400	\$155,524	Approximately 4,000 rare volumes, worth an estimated \$3 million, are housed in two 1,200-sq.-ft. rare book rooms constructed in 1968–1969. This project installed systems to conserve the physical volumes, to safely share and exhibit these works, and to reflect their tangible and intangible value through interior and exterior aesthetics. Both rooms also have rich finishes and room 8010 (housing “the rarest of the rare”) has distinctive coved ceilings, indirect lighting, and upscale lighting fixtures. Both have identical engineering, environmental, security configurations plus separate FM-200 waterless fire suppression systems, automated digital temperature and humidity controls, a networked card swipe system, connectivity to security dispatch, hidden cameras, and motion controlled lighting systems and are highly alarmed. Bookcases provide passive airflow and are capped to prevent water damage if the roof is breached. Secure display units face a public hallway allowing safe display of rare volumes and artifacts.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
University of New Mexico Health Sciences Library and Informatics Center	Brian Bennett, AHIP	NA	Renovation: February 2005, Combo: renovation/new (two projects): 2003 and 2007	2005: \$30,000, 2003: \$100,000, 2007: \$23,000	2003: 1,436, 2004: 392	2005: \$24,000, 2003: \$21,400, 2007: \$8,400	Shifting and renovation of staff work areas to accommodate new learning design center. Creation of numerous new offices. (1) Former study area and group study rooms were repurposed into an administrative suite. Various private offices were created, as was a conference room with videoconferencing capability. (2) Refurbished conference room will include videoconferencing capability, overhead projection unit, projection screen, kitchen facilities, conference table, and chairs.
University of North Carolina at Chapel Hill Health Sciences Library	James Curtis	Cline Design Associates, PA, Raleigh, NC	Renovation: December 2004	\$13 million	98,000	\$1,401,727	Everything was replaced in the interior, including HVAC, wiring, cabling, plumbing, etc.; central elevators and the emergency stairs were left unchanged; exterior was changed to increase windows and admit more light; and a second entrance and a staff elevator were added. We continued to occupy the building during the rebuild, which was done in 2 stages, 3 floors at a time. Two-thirds of the collections was moved to off-site storage, relocating all staff to 3 times and moving on-site collections several times. Special features: 2 open computer commons with 25 and 30 work stations; café; 20 small group study rooms (8 equipped with AV/video equipment); 2 small media design rooms; collaboration center with access grid node, visualization wall, and videoconferencing; 1 floor with large-capacity compact shelving; 30-person computer classroom with distance education capability; 20-person computer classroom; 12-person videoconference room; flexible/dividable combination meeting/classroom/conference room with 20/20-, 50-, and 120-person capacity. Medicinal herb garden. Practical seating capacity is 633; maximum seat count is 716.
University of Oklahoma-Tulsa Library	Junie Janzen	McSorley Architects, Tulsa, OK	New: September 2010	\$8.5 million	22,000	NA	The new 22,000-sq.-ft. facility will include a knowledge commons, learning spaces including group study rooms and quiet reading areas, and an information gallery. The building also will house the library faculty and staff, service space for reference and circulation activities, and shelving for current journals and monographs. Features: group and individual study rooms, conference room, gallery, moveable furniture, compact mobile shelving for periodicals, and information commons.
University of South Carolina School of Medicine Library	Ruth Filey, AHIP	Craig, Gaulden & Davis, Greenville, SC	Renovation: 2008	\$1 million	24,000	\$147,260	2008 project involved removal of book stacks to create soft seating area with 4 flat screen TVs adjacent to computer pods, laptop-ready chairs, elimination of current journals area, and replacement with magazine spinner racks with AIM journals in soft seating area. Project added group study rooms, enlarged computer classroom, Charles S. Bryan History of Medicine Room, and information commons with flat screen TVs. 2000–2001 renovation moved front entrance of library from one side of building to another, reconfigured user and staff spaces, added group study rooms, created new history of medicine room, and relocated and enlarged computer classroom.

Table 1
Continued

Institution	Contact	Architect	Construction type and completion date	Project cost	Gross square feet	Furnishing and equipment cost	Project narrative
University of Texas Health Science Center (UTHSC) at San Antonio Briscoe Library*	Rajai Tobia, AHIP	John Amos, UTHSC at San Antonio campus architect	Renovation: estimated November 2009	\$2,443,512, estimated	NA	NA	6 renovation projects include: (1) Office suite constructed for academic center for excellence in teaching on library's 4th floor eliminated 8 group study rooms. (2) 9 new group study rooms equipped with flat screen monitors built on the library's 3rd floor to replace 8 study rooms above. (3) 3rd, 4th, and 5th floors recarpeted in both staff and public areas. (4) 3rd-floor public area prepared to become an information commons area to house computers displaced by classroom construction on 2nd floor, and electrical and network drops installed for desktop computers and laptop stations. (5) Library staff offices built to replace offices and work spaces lost to classroom construction. (6) 10 new classrooms will be built on the 2nd floor in space formerly housing the library's computer lab, 1 classroom, and systems staff offices.
University of Texas Southwestern Medical Center Library	William Maina, AHIP	South campus: Fred Alexander, UT architect; North campus: OMNIPLAN Architects, Dallas, TX	Renovation: 2001	\$4 million, approx.	South campus: 64,531, North campus: 4,351	About \$450,000	The library's main facility occupying most of the 2nd, 3rd, and 4th floors of a 7-story building built in 1974 on the south campus was renovated between 1999 and 2000. The library continued operations during renovations. The main floor was extensively renovated, including staff office spaces on the middle and top floors. The stack and study areas on the middle and top floors were recarpeted, repainted, and received new study tables, chairs, and new computer furniture. Special features: 17 group study rooms, computer commons, multimedia classroom, and a modular information desk. Seating for 437 users. Additionally, the north campus branch library on the 2nd floor of a 14-story research building was constructed in 2004 and designed to provide a relatively small physical presence for the library on the north campus. It features a computer commons and group study rooms in its 4,351 sq. ft., seating 62 users.
University of Utah Spencer S. Eccles Health Sciences Library+Health Sciences Education Building	Jean Shipman, AHIP, FMLA	VCBO Architecture, Salt Lake City, UT	New: 2005	\$40 million, approx.	5-story facility: 158,000	\$3.9 million approx.	User seating capacity is around 1,600. See featured library building projects.
University of Vermont Dana Medical Library	Marianne Burke, AHIP	TSOI/KOBUS & Associates, Cambridge, MA	New: July 2005	NA	20,000	\$500,000	Library space includes conference room; 3 AV/study rooms; computer classroom with projection capabilities, AV equipment, and state of the art podium that allows the instructor to deliver customized multimedia presentations; and 3 lounge areas. User seating capacity is 163.
University of Wisconsin (UW)–Madison Ebliing Library	Terrance Burton		New: 2004		Library 50,000		The Ebliing Library is located in the UW Health Sciences Learning Center (HSLC), built in 2004. The HSLC consolidated 3 existing libraries: the pharmacy, Middleton Health Sciences, and the Weston Clinical Sciences Library. Features of the new Ebliing Library include a climate-controlled vault for the rare book and historical collections, single information service desk, a multimedia teaching lab, and distance education facilities.

* See the January 2010 issue of the *Journal of the Medical Library Association* for a case study on this project.

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AUTHOR'S AFFILIATION

Logan Ludwig, PhD, AHIP, FMLA, lludwig@lumc.edu, Associate Editor, Building Projects, *Journal of the Medical Library Association*, and Associate Dean, Library and Telehealth Services, Loyola University Stritch School of Medicine, 2160 South First Avenue, Maywood, IL 60153

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